

# Amendment 37 Update: Renewable Portfolio Standards, Amendment 37 Background, Applicability

Interconnection and Net Metering Workshop  
February 22, 2006

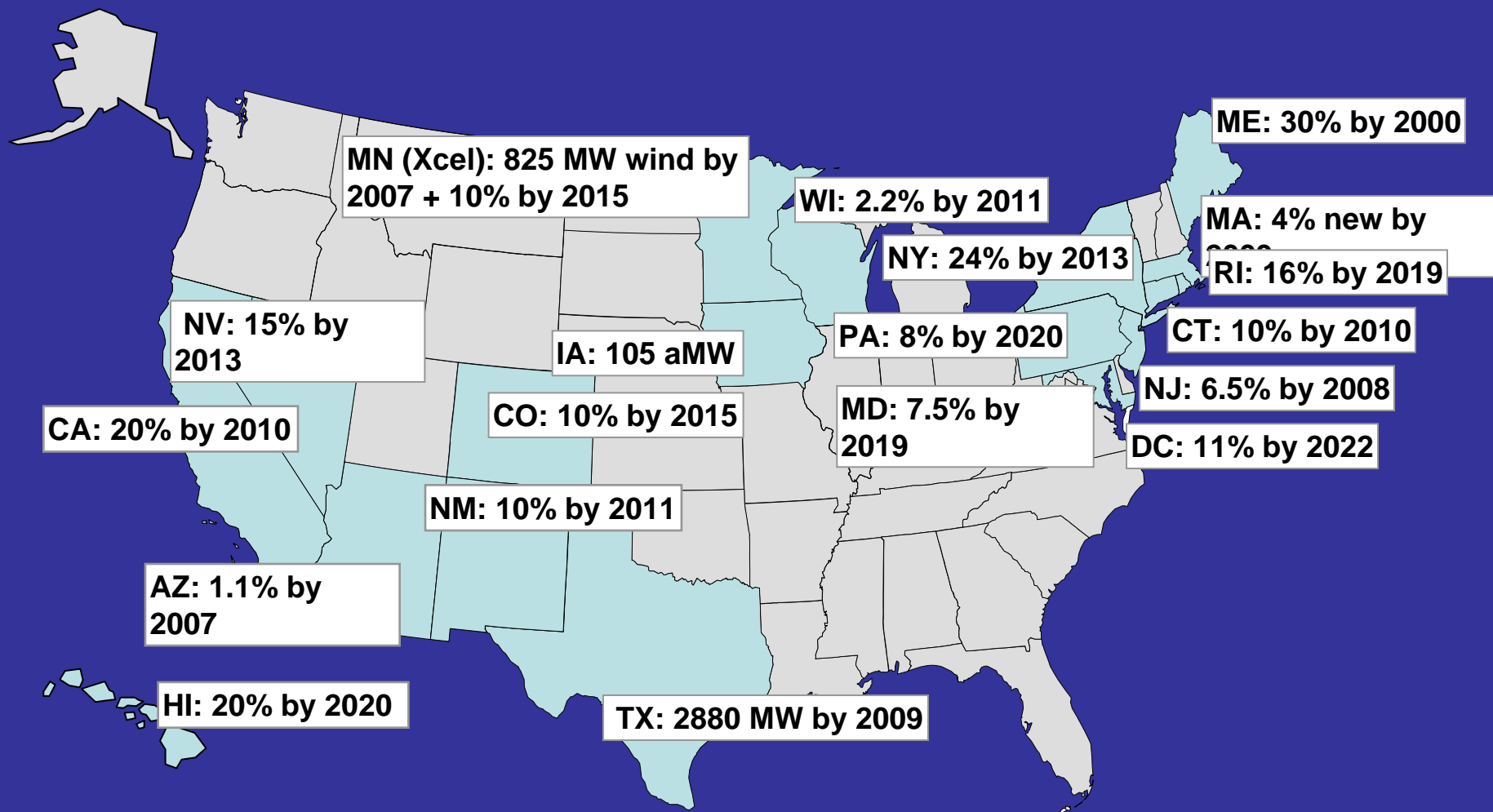
Morey Wolfson  
Solar Program Manager  
Colorado Energy Science Center  
Golden, Colorado

# Background on Renewable Portfolio Standard

## Renewable Portfolio Standards Renewable Energy Standards

- Establishes a requirement that a certain percentage of RE must be in the electric supply by date certain.
  - European Union's Renewable Purchase Obligation
- In some states and nations, the RPS is a key driver for the deployment of **grid-connected rooftop photovoltaics**.
  - Huge PV market in Japan and Germany.
  - \$3 Billion PV market through 2017 in California
  - Major new markets in New Jersey, Pennsylvania
  - Significant PV market is emerging in Colorado

# Existing State RPS Requirements: 19 States and Washington D.C.



# Solar Set-Asides: 7 States and Washington, D.C.

**WA:** Large incentives for PV; ballot Initiative under way

**NV:** 0.75% solar by 2013

**CA:** \$3B in ratepayer commitment to PV by 2017; ballot initiative may start this summer

**AZ:** 0.66% solar by 2007; about to increase substantially

**NM:** PV owner receive payments

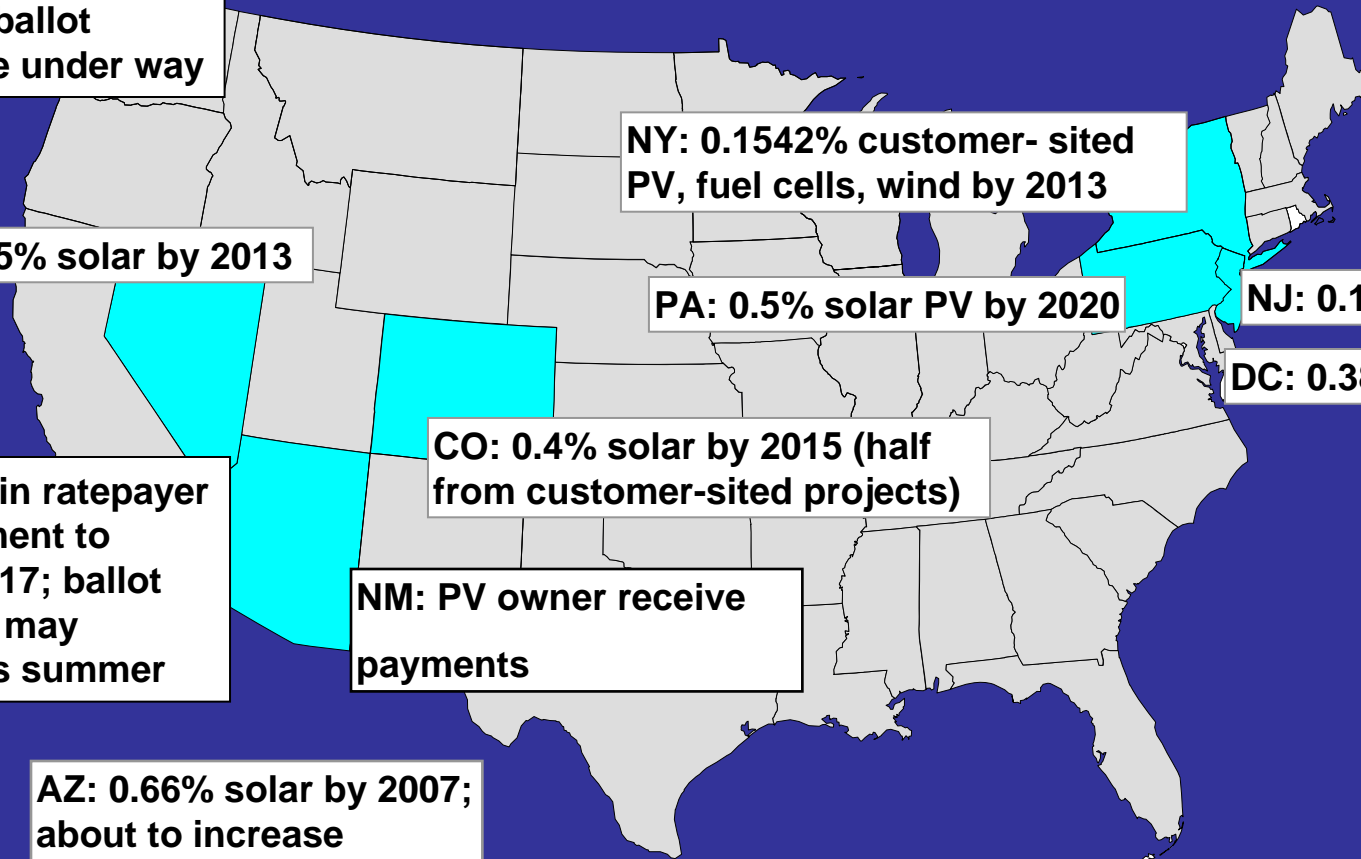
**CO:** 0.4% solar by 2015 (half from customer-sited projects)

**NY:** 0.1542% customer-sited PV, fuel cells, wind by 2013

**PA:** 0.5% solar PV by 2020

**NJ:** 0.16% solar by 2008

**DC:** 0.386% solar by 2021



© 2010 Blackwell Publishing Ltd *Journal of Internal Medicine* 267: 103–111



# RPS in Colorado: a brief history

- 2001: State Energy Policy Committee
- 2002-03-04: Legislative – “close calls”
- 2004: Decision to run a ballot initiative
  - Wells Fargo polling: 70%+ would vote yes
  - Internal polling:
    - 75%+ for a 10% standard
    - 65% would vote yes after exposure to negative arguments
    - ~60% would vote yes for a 20% standard
    - ~60% would vote yes for an efficiency/renewables combination

Legislative  
RPS likely  
would have  
resulted in:



100%  
wind

A37 will like result in:



96%  
wind,  
perhaps  
some biomass



2%  
central solar



2%  
customer-  
sited  
solar



November 2, 2004

**Colorado voters endorsed the  
10% by 2015**

**Renewable Portfolio Standard**

**by a vote of**

**54-46%**

**Nation's first voter-approved RPS**



## Vote Detail: 11 Contested Counties

A37 won with 54% of the vote: 1,029,445 of the 1,927,805 votes cast on this issue. Statewide, A37 won in 23 counties and lost in 42. The biggest winner was Pitkin County with an 81.5% yes vote and the biggest loser was Moffat County with only a 19.6% yes vote. The 11 target counties and the election results for each were:

<u>County</u>	<u>Yes vote</u>	<u>No vote</u>	<u>% of total vote</u>
Adams	52%	48%	6%
Arapahoe	54%	46%	11%
Boulder	71%	29%	7%
Denver	65%	35%	10%
Douglas	50.4%	49.5%	6%
El Paso	45%	55%	11%
Jefferson	55%	45%	13%
Larimer	55%	45%	7%
Mesa	42%	58%	3%
Pueblo	43%	57%	3%
Weld	49.2%	50.7%	4%
<b>OVERALL</b>	<b>54%</b>	<b>46%</b>	<b>100%</b>

## County support for Amendment 37

■ YES ■ NO



# Projected A37 Requirements

		2007	2011	2015
Xcel Energy*	IOU	231 MW	509 MW	941 MW
Colo Springs Utilities	MUNI	39 MW	84 MW	151 MW
Intermountain	REA	0 MW	0 MW	0 MW
Aquila	IOU	15 MW	33 MW	58 MW
Fort Collins Utility	MUNI	12 MW	25 MW	46 MW
Holy Cross	REA	9 MW	19 MW	34 MW
United Power	REA	0 MW	0 MW	0 MW
Longmont	MUNI	6 MW	14 MW	25 MW
Mountain View	REA		5 MW	11 MW
La Plata	REA		9 MW	19 MW
Poudre Valley	REA		7 MW	14 MW
Delta Montrose	REA			5 MW
Projected Total		317 MW	722 MW	1,335 MW

\* Xcel currently has about 200 MW of eligible resources

# Projected Solar Requirements

	2007	2011	2015
Xcel Energy*	18.1 MW	40.0 MW	73.9 MW
Colo Springs Utilities	0 MW	0 MW	0 MW
Intermountain REA (X)	0 MW	0 MW	0 MW
Aquila	1.2 MW	2.5 MW	4.5 MW
Fort Collins Utility	0 MW	0 MW	0 MW
Holy Cross REA (X)	0 MW	0 MW	0 MW
United Power (REA) (T)	0 MW	0 MW	0 MW
Longmont	0 MW	0 MW	0 MW
Mountain View REA (T)		0 MW	0 MW
La Plata REA (T)		0 MW	0 MW
Poudre Valley REA (T)		0 MW	0 MW
Delta Montrose REA (T)			0 MW
<b>Projected IOU Total</b>	<b>19.3 MW</b>	<b>42.5 MW</b>	<b>78.4 MW</b>

\* Estimated ~ 1 MW of eligible solar resources currently available



**If 50% of the solar set aside requirement was met by central solar, 42 MW would be installed.**

**Included would be large commercial and utility-scale, using PV or central solar thermal electric power.**



# General Provisions

- *Statutory* Amendment
- Applies to utilities with >40,000 customers
- Standard grows to 10% by 2015
- Solar requirement grows to 0.4% by 2015
- 1% retail rate impact cap
- Self-implementation for munis & coops
- Opt-out and opt-in provisions

# Fulfilling the Need

- General Renewable Category
  - Large wind
  - Biomass
  - Small hydro
- Solar Electric Resources
  - On-site solar (minimum of 2%)
  - Central solar power (remainder)

# Other Resources

- Biomass
  - Crops, urban wood waste, forest residue
  - Animal wastes
  - Landfill & wastewater methane
- Small hydro  $\leq 10$  MW
  - Colorado Independent Energy Association (CIEA)
- Existing hydro  $\leq 30$  MW



# Central Solar Power

- Solar trough technologies
- Dish Sterling
- Acquisition by RFP?
  - EPACT '05:
  - 30% investment tax credit
    - Utilities cannot use

# Customer-sited Solar Power

- Systems 10 kW and smaller
  - Single meter
  - Single up-front rebate
    - $\$2/W + \$2.50/W \text{ REC} = \$4.50/W$
- Systems larger than 10 kW
  - \$2 per AC W up-front rebate
  - RECs acquired by competitive bid
    - Second meter for REC measurement

Rick Gilliam will cover this.

# PUC Rulemaking

- Overview includes A37 intent
- Compliance based on Renewable Energy Credits
- Administrative penalties equal to estimated cost of compliance
- Net metering/interconnection (to be discussed by others)
- Existing Qualifying Facilities
  - renewable energy contracts counts towards meeting the standard
- Excludes the rate benefits of existing resources (Lamar, hydro)
  - Lamar, small hydro count towards standard, but benefits not considered towards rate impact
- Decision, after deliberating on petitions for rehearing, reargument, and reconsideration was issued on Feb. 3, 2006.
- Rules must be final by March 31, 2006

# Thank You!

## Contact information:

Morey Wolfson  
Colorado Energy Science Center  
1626 Cole Boulevard, Suite 375  
Lakewood, CO 80401  
303-216-2026  
[mwolfson@energyscience.org](mailto:mwolfson@energyscience.org)